

**ABSTRACT OF THE DISCLOSURE**

Optimizers must work with numeric data from a variety of sources including column statistics, estimated filter factors, record counts estimated costs and the like. Embodiments provided herein define and represent any such numeric measurements as a Vector of  $N$  dimensions, where  $n$  is a number of aspects of measurements that a particular optimizer is configured to consider. A particular embodiment provides a 4-dimensional vector where the dimensions represent magnitude, confidence, variance interval, and penalty. Examples of measurements considered by the optimizer, and which may be represented as a vector, include cost, estimated selectivity of a predicate, estimated number of records returned from part or all of a query, estimated record fanout when joining one file to another, etc.